

**GREEN INTERNATIONAL AFFILIATES, INC.**

239 LITTLETON ROAD, SUITE 3 WESTFORD, MA 01886

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PROJECT NAME HAGER HOMESTEAD, 336-338 KING ST, LITTLETON, MADATE 5/21/2020

UPDATED: _____

PROJECT NO. 19060.061X**Peer Review Comment Form**

NO.	SHEET NO.	SECTION	GREEN'S COMMENT	APPLICANT'S RESPONSE	CONFIRMED BY	DATE
APPLICATION						
1			The Applicant will be required to obtain a MassDOT Access Permit. We recommend that the Planning Board make the MassDOT Access Permit a requirement as a condition to any approval.	GPR agrees that an access permit is required from the MassDOT, and will be aquired before construction.		
STORMWATER REPORT						
2	report pg 8	Stormwater Management Standard 2 - 4	Given that the "water quality swale" has a flat base and retains 2 ft of water, it seems to be an infiltration basin rather than a swale.	GPR has clarified the function of this BMP as describing it as a Wet Water Quality Swale, and has updated plans accordingly.		
3	report pg 19	Stormwater Management Standard Checklist LID measures	Plans show that only two existing trees are being protected. Suggest unchecking the fourth box.	GPR has unchecked the fourth box.		
4	report pg 19	Stormwater Management Standard 1	We note that the box is checked for supporting calculations. We did not see any outlet calculations for scour or energy dissipation in the report.	GIA wanted to make sure we thought about this within our design. GPR did take scour and energy dissipation when deciding on pipe sizing and outlets		
5	report pg 31 - 46 & C4.1	Stormwater Management Standard 3	The base of the "water quality swale" is at 230' and the estimated seasonal high groundwater level in bore hole 1219-D2 is 228.33'. The estimated seasonal high groundwater level in the closest borehole outside the proposed BMP (1219-D1) is 230'. This BMP has a discarded discharge in the HydroCAD model, the designer is assuming that infiltration will occur. However, the BMP does not meet the required 2ft separation, so should not be allowed to infiltrate. We suggest relocating this BMP or converting it to a bioretention area with seperation lining.	GPR has removed the analytical exfiltration from our calculations.		
6	report pg 21 & 128	Stormwater Management Standard 4	The second box is checked for Standard 4. The water quality calculations should be revised to use one inch.	GPR has revised to reflect 1-inch.		
7	report pg 130	Stormwater Management Standard 4	The third row Process Train No. seems to be incorrect. Should it say SC-2.7?	GPR has revised.		
8	O&M Manual and Plans	Stormwater Management Standard 9	Will maintenance vehicles will be able to access the Water Quality Swale and Infiltration Basin to perform regular and major maintenance such as removal of accumulated sediment.	GPR believes that maintenance vehicles will be able to access the wet water quality swale and infiltration basin to perform maintenance.		
9	O&M Manual	Stormwater Management Standard 9	The manufacturers instructions for Stormtech Chambers and Silt Prison Catch Basin should be included in the final O&M Manual.	GPR has added the manufacturers instructions for the Stormtech Chambers and Silt Prison Catch Basin to the O&M manual.		
10	report pg49 & 59 (pre & post -dev watershed map)		The AP and drainage arrows are on the legend but not on the plan. Subcatchment line type on legend looks different from that on plan, maybe because of thickness - clarify.	GPR has added AP, removed drainage arrow from legend, fix line types to more accurately match plan and legend.		
11	report pg49 & 59 (pre & post -dev watershed map)	Mass DEP Hydrology Handbook	The time of concentration lines do not look like they start from the most hydraulically distant point.	GPR has evaluated all time of concentration lines. We adjusted the TOC for subcatchment 2.3 and 2.8.		
12	report pg59 (post-dev watershed map)		DMH1 is mislabeled as DMH3	GPR has revised.		



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ZONING BYLAWS						
13	L300	§ 173-18-C	As stated in this condition, we suggest adding a 4ft wide planting / screening between the parking spaces and residential units MS4 & 5.	173-18-B, 173-32(C)(3); GPR believes that these sections are applicable to public ways and abutting properties, not within the development itself.		
14	C4.1	Littleton Wetland Bylaw, Section 4	The three new buildings (C1, C2 & C3) within the 100ft buffer line require up to 6.5ft deep fill. These buildings come within 2ft of the 50 ft buffer line (No-Disturbance Area). Is it feasible to construct these buildings without tracking any machinery through the No-Disturbance Area?	GPR believes that it is feasible to construct these buildings without disturbing the no-disturbance area.		
SPECIAL PERMIT						
15	Special permit application, pg 7 of 10	Traffic Impact Assessment	The Traffic Impact Assessment should have used the latest edition of the ITE Trip Generation Manual, which is the 10th edition. However, based on our preliminary calculations, the latest trip generation manual should produce similar results as the assessment letter. As a result, the conclusion of the assessment is expected to remain the same.	GPR agrees with the comment.		
SENIOR RESIDENTIAL DEVELOPMENT SPECIAL PERMIT						
16	Senior Residential special permit application, pg4/Open Space Plan	Open Space and Outdoor Amenities	The Walking Paths/Trails box is checked under the Health/Social Leisure/Recreation/Amenities category. A trail is shown on the Open Space plan, but it is on the northern portion of the site and not connected to the proposed housing development.	GPR has adjusted the grading by the relocated barn to provide gradual access to the open space in the rear of the property.		
17	Senior Residential special permit application, pg4/Open Space Plan	§ 173-148-E	A permanent Conservation Restriction is required for the common open space area. This has not been shown on any plans.	GPR has submitted an exhibit CR plan.		
18	Senior Residential special permit application, pg4/Open Space Plan	§ 173-148-E	The upland open space is required to be contiguous and usable by residents of the development. The proposed grading along the northern end of the buildings shows steep slopes down to existing making it difficult for anyone to easily access the open space around the wetland.	GPR has adjusted the grading by the relocated barn to provide gradual access to the open space in the rear of the property.		
19	Senior Residential special permit application,	§ 173-148-E	The Applicant is including two stormwater BMPs in their designated open space area. It's unclear if these can be considered part of the common open space area.	These will be part of the Open Space		
Aquifer and Water Resources Special District Permit						
20	special permit application, pg4	§ 173-61, 62	Check the boxes for Wetlands and Water Resource District.	The boxes for wetland and water resource district have been checked		

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21	aquifer_water_resources_districts_special_permit_pg1	§ 173-62	Check the line for Parcel in Water Resource District.	The line for parcel in water resource district has been checked		
22	aquifer_water_resources_districts_special_permit_pg1	§ 173-62 D	The applicant indicated N/A to five of the Submission Requirements. Please confirm that there will be no potentially toxic or hazardous chemicals on the premises, for example medical waste, cleaning chemicals, pesticides or salt products that may be used to look after this facility.	There will be nothing more than household quantities on site. No bulk storage of cleaning supplies, medical waster, etc.		
23	aquifer_water_resources_districts_special_permit_pg1	§ 173-63 E	Include a detail & dimensions for the proposed septic tanks. As per this section, groundwater monitoring wells should be installed near the proposed sanitary disposal area. We understand that this condition will be confirmed by the Planning Board in consultation with the Littleton Water Department. We recommend that the number and location of these monitoring wells be coordinated with the Town of Littleton Water Department.	Subsurface Sewage Disposal System plans, with detailed tanks and groundwater monitoring well locations will be submitted to the Littleton BOH and LELWD. If the project uses an onsite sewage disposal system, LELWD will require location and number of monitoring wells to be installed. Project may be serviced by municipal sewer which would change the minimum required. see email from Bruce Ringwall.		
LITTLETON CODE SUBDIVISION OF LAND						
24	C2.1	§ 249-32. B & C	We suggest including an existing conditions plan at 1:20 scale (zoomed in to the area of interest), which shows the existing below ground utilities, which are not shown on plan C2.1.	See Sheet C2.2		
PLANS						
25	C2.2		Label existing lights and generator.	GPR has labeled the existing generator. The existing lights are shown within the legend.		
26	C2.2		The leaching field areas marked with "[SEE PLAN REFERENCE #2]". If important to this review, where can this reference be found? Confirm that remediation of these areas and safe disposal of any contaminated material is included in the proposed works.	See sheet C1.1. Not pertaining to this review. Removal will be done according to BOH and State rules and regs.		
27	C2.3, C5.1, C5.2, C5.3		Number the details on these sheets so that they can be referenced more easily.	GPR believes that the use specific detail names within specific calls, can be easily referenced.		
28	C3.1		There are existing survey features including a hydrant, gate valves and drain manhole shown on King Street that are not connected to lines; utility mapping appears to be unfinished.	Noted. Project dependant utilities are shown.		
29	C3.1		Specify diameter and materials of proposed water supply pipes and existing watermain on King Street.	GPR has added this information.		
30	C3.1		Add notes to specify size of connection fittings proposed for the two water supply connections to the main line on King Street and add a suitable detail for the tapping or tee.	GPR has added this information.		
31	C3.1		Confirm that the Fire Department and Water Department have reviewed the design and confirmed that adequate fire protection can be provided for the development.	GPR has submitted plans to both departments for review.		
32	C3.1		With regards to the sewer laterals from building C1, C2, C3 and RU. Clean outs CO3, CO6, CO8 and CO10 should be positioned upstream of the connection to the trunk sewer pipe; the connection fitting is separate from the cleanout fitting. Wyes could be used for these connections and should be detailed. Alternatively, we suggest connecting directly to SMH's where possible, to eliminate some of these cleanouts and wye fittings.	GPR notes that graphical scale limits clarity. Additional details will be provided on final septic design plan submitted to board of health.		



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33	C3.1		What do the two squares depicted by dash-dot lines indicate?	GPR has provided an additional call further clarifying what the dashed lines are (Leaching Areas)		
34	C3.2	527 CMR (NFPA 1)	The Applicant should have the Littleton Fire Department approve the travel way for their emergency vehicles. The plans include a proposed 20' travel way that is comprised of a 10' bit conc. walk with 5' of grass pavers on each side of the walk.	GPR has provided Littleton Fire Department with a plan set for review.		
35	C3.2		The plans appear to show berm/curb at both ends of the 10' bit. conc. path. This will make emergency vehicle access a challenge. We recommend that the Applicant revise the plans to include mountable granite curbing. The Applicant should obtain approval for the Fire Department regarding the layout of the curbing and its opening. A detail for this curbing should also be added to the plans.	GPR has revised and provided detail.		
36	C3.2		The plans do not indicate the sidewalk material for the proposed sidewalk within the State Layout. Sidewalk being replaced in the State Layout should be replaced in kind and should remain cem. conc. For clarity, the Applicant should revise the plans to indicate the sidewalk material throughout the site.	GPR has revised the concrete walkways along state highway layout.		
37			An existing catch basin on King Street appears to be in the middle of the proposed northern driveway entrance. MassDOT may request that the Applicant relocate this catch basin. The Applicant should coordinate this work with MassDOT during the Access Permit process.	GPR will defer to MassDOT State Highway Access Plan comments.		
38	C4.1		Add proposed contouring at the relocated barn.	This area has been regraded as part of comment #16		
39	C4.1		Flared end sections may not be needed for the 6 inch diameter pipe outlets into the Infiltration Basin.	See Reponse to #4		
40	C4.1		A single catch basin may not be adequate for SC-2.5. Consider spread and consider proposing a double grate. Hydraulic calculations should be provided to support the pipe network sizing.	GPR has changed to proposing a double grate.		
41	C4.1		The manufacturer may require an access manhole closer to infiltration chambers for maintenance.	GPR believes that because only "clean" water is going into these infiltration chambers that the likely hood of failure is low, and if system does fail they will need to be replaced.		
42	C4.1		On the northeast side of main building the proposed grading shows a swale that seems to drain towards a low area on the proposed sidewalk at the entrance to MS4. We suggest draining these areas towards the driveway and parking lot.	Noted. Drainage does go towards the parking area.		
43			There is a 232' contour missing from the sediment forebay. The missing contour is important because it depicts the spillway, please add it.	GPR has revised grading due to new building configuration		
44	C5.1		The fire hydrant assembly shows "3' min clear" behind the hydrant. What is the purpose of this clearance; is it suitable to have a steep slope within this clear zone (as is shown in the detail)?	Correct. No Fences, Walls, Etc.		
45	C5.1		The Driveway Detail does not provide cem. conc. sidewalk across the driveway, per MassDOT Standards. The Applicant should coordinate the driveway type with MassDOT during the Access Permit process.	GPR will defer to MassDOT State Highway Access Plan comments.		
46	C5.1		The Driveway Apron Detail references a Boxborough Bylaw. The Applicant should revise the plans to only reference Littleton or MassDOT Standards.	GPR has revised.		
47	C5.2		Suggest changing the detail name "Level Spreader" to "Rip rap apron", and refer to this detail on the "Pipe End" detail.	GPR feels the detail name we have is correct		
48	C5.2		Regarding the "Roof Drain Dry Well" detail. This connection type appears to be inappropriate given that both pipes are 6" diameter. Where is the "dry well", mentioned in the detail name?	GPR has revised the detail.		
49	C5.2		Add notes to the outlet control structure detail to explain how the connection between the 24" corrugated plastic pipe and the 12" HDPE pipe will be made.	GPR has added a note to the detail.		
50	C4.1		The plan states that the Stone Armoring is (by others). Why does this need to be done by a separate contractor?	Refers to design by another discipline.		
51	L300		Poor quality print, text on the details is difficult to read.	Noted. Copley Wolff.		
52	A1.3		Text duplicate "Sitting Area"	Noted. SPA.		
53	A3.1, Detail 3		Text missing on upper right.	Noted. SPA.		



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54	A3.1 & A3.2		How will runoff from the carport roofs be collected?	GPR has added drip edges to the backside roofline of the carports.		